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REMARKS

Status of Claims

Claims 1, 2 and 4 remain pending.

Claim 3 has been cancelled.

Independent Claim 1 has been amended, by the foregoing amendments, to more clearly recite the novel features of the present invention. More particularly, independent Claim 1 has been amended to clarify the nature of the waste oxide gas stream as well as that the various types of second industrial processes are those which oxidize or partially oxidize hydrocarbons. It is believed that this amendment is supported by the present specification as discussed in further detail hereinbelow.

Claim 4 has been amended, by the foregoing amendments, to correct claim language and address clarity issues raised by the Examiner, as discussed in further detail below.

The Present Invention

The present invention relates generally to a method for abating waste oxide gases from a waste oxide gas stream. More particularly, as recited in independent Claim 1, this method comprises: (a) providing a first industrial process, the first industrial process producing a waste oxide gas stream which is otherwise destined to be vented, or treated with a waste oxide gas abatement system and then vented, to the atmosphere, the waste oxide gas stream comprising at least one waste oxide gas selected from the group consisting of nitrogen oxides, sulfur oxides and carbon oxides; (b) providing a second industrial process selected from the group consisting of oxidation, partial oxidation, oxidative dehydrogenation, and ammoxidation and capable of abating the quantity of said waste oxide gas stream, from the first industrial process, when said waste oxide gas stream is fed to said second industrial process as a feed stream; and (c) feeding at least a portion of said waste oxide gas stream, from the first industrial process, as a feed stream, to said second industrial process.

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Thus, generally, the method of the present invention abates waste oxide gases (WOGs) by linking previously unrelated processes, without intermediate treatment of feed streams. In other words, a first process produces a waste oxide gas stream, which is fed to a second, separate and unrelated process which is capable of utilizing that WOG stream and abating the WOGs during the second process without pretreatments to remove or destroy the WOGs. Furthermore, the present invention provides an alternative use for waste oxide gas streams, which would otherwise be destined to be vented, or treated with a waste oxide gas abatement system and then vented, to the atmosphere, thereby reducing the overall total emissions to the atmosphere from the first process. The present disclosure makes it clear to persons of ordinary skill in the art that the "waste oxide gas stream" is a stream which would otherwise be a totally useless end stream destined to be discarded by release (venting) to the atmosphere.

The recognition that many such waste streams contain components harmful to the environment, or otherwise regulated by government, so that the waste streams must be treated to remove or at least reduce the amount of such harmful components before venting, is easily made by persons of ordinary skill in the art based on the present disclosure. In particular, page 1, lines 5-6 and 14-15, of the present specification, explains that emission produced by industrial process are the issue because they produce undesirable effect when introduced to the environment (such as, by venting to the atmosphere) (see also, page 4, lines 24-26). Reduction of waste oxide gas emissions is achieved in two ways – inhibition of its formation, or its destruction after formation but before venting (see page 2, lines 1-6), which are very familiar to persons of ordinary skill and are often referred to as "conventional abatement" systems or technologies. The present invention starts with a first industrial process which produces a "waste" stream containing "waste" oxides (page 6, lines 26-27). Use of the term "waste" naturally implies something that is garbage, to be discarded as something useless. On page 10, lines 30-32, and on page 11, line 29 to page 12, line 1, the present specification describes the destiny of waste oxide gases in the prior art as being vented to the atmosphere, or treated with a conventional abatement system ("a

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traditional SCR system"). See also, page 12, line 29 to page 13, line 2; page 13, lines 15-18; page 14, lines 23-24; page 15, lines 4-9 and 24-26; and page 16, lines 16-25.

Claim Rejections Under 35 U.S.C. § 112, second paragraph

On pages 3 of the Office Action, Claim 4 has been rejected under 35 U.S.C. § 112, second paragraph, as being indefinite because it is unclear how, as recited in previously amended Claim 4, the process would "comprise" one of the recited compositions.

By the foregoing amendments to Claim 4, the word "comprising" has been replaced with the more accurate phrase "having one or more reaction steps which involve" to clarify that the second industrial process is capable of utilizing, rather than the process itself comprising, at least one of hydrogen, carbon oxides, nitrogen oxides, ammonia, hydrocarbons, and oxygen. It is believed that this rejection of Claim 4 has been adequately addressed and withdrawal of this rejection is, therefore, hereby respectfully requested.

On page 3 of the Office Action, Claims 1, 2 and 4 have been rejected under 35 U.S.C. § 112, second paragraph, as being indefinite because the Examiner asserts, among other things, that there is no support in the present specification for an embodiment wherein the first and second industrial processes are not different from each other (amended Claim 1). To the contrary, the specification provides a list of processes suitable for consideration as the "first industrial process" (see page 6, line 26 to page 7, line 4), and another list of processes suitable for consideration as the "second industrial process" (see page 7, line 15 to page 8, line 8) and there is considerable overlap between these lists and persons of ordinary skill will easily recognize that various kinds of equipment identified on the first list will be found in use in various kinds of industrial processes, including many of those listed in the second list. Additionally, the present specification states that "[a]lthough the second industrial process should not be the same process as the first industrial process, a variety of processes are suitable for use as the second industrial process" (page 7, lines 7-8), which clearly does not require the first and second processes to be different and allows

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the possibility that they are not different. From these disclosures, persons of ordinary skill in the art would readily understand that the first and second industrial process may be the same, but most likely will not be the same. It is believed that this rejection of Claim 1 has been adequately addressed and its withdrawal is hereby respectfully requested.

On page 3 of the Office Action, the Examiner also asserts that there is no support in the present specification for employing partial oxidation or oxidative dehydrogenation other than the partial and oxidative dehydrogenation of hydrocarbons. By the foregoing amendments to Claim 1, the term "of hydrocarbons" has been added for each type of oxidation reaction listed therein. It is believed that this rejection of Claim 1 has been adequately addressed and withdrawal of this rejection is, therefore, hereby respectfully requested.

Lastly, also on page 3 of the Office Action, the Examiner asserts that there is no support in the present specification for employing compositions such as hydrogen, carbon oxides and nitrogen oxides in conjunction with such process as oxidation, partial oxidation, oxidative dehydrogenation and ammoxidation, as recited in Claim 4. It is respectfully noted that persons of ordinary skill can easily understand and determine that at least some oxidation, partial oxidation, oxidative dehydrogenation and ammoxidation processes have one or more of hydrogen, carbon oxides and nitrogen oxides present. These are basic concepts which are known and readily understood in the relevant art by all persons of ordinary skill based on the general knowledge possessed by such persons. Therefore, it is not necessary, and Applicants believe it to be overly burdensome and redundant, to require that specific descriptions explaining which processes have or utilize one or more of hydrogen, carbon oxides and nitrogen oxides present. Based on the foregoing discussion, withdrawal of this rejection of Claim 4 is hereby respectfully requested.

Claim Rejections Under 35 U.S.C. §§ 102(e)

On page 2 of the Office Action, Claims 1, 2 and 4 continue to be rejected, under 35 U.S.C. § 102(e), as being anticipated by or, in the alternative, under 35 U.S.C. §

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103(a), as being obvious over Allison et al (US6,911,193). Applicants respectfully traverse this rejection for the reasons which follow.

Allison et al. does not anticipate or make obvious the present invention as recited in amended independent Claim 1 because it fails to disclose all the features of the present invention, and contains no disclosure or suggestion which would lead to the present invention recited in amended independent Claim 1.

In particular, the method described in Allison, et al. generally concerns the first step of a larger overall process for conversion of methane into higher hydrocarbons, wherein the first step is the conversion of methane into synthesis gas, i.e., a mixture of hydrogen and carbon monoxide, and this first step is accomplished with a two-reaction zone reactor system, both of which produce synthesis gas, which can then be converted in the second step to form the higher hydrocarbons. The present invention, on the other hand, concerns alternate uses for waste streams comprising waste oxide gases which would otherwise be discarded, by venting, or treatment to reduce the amount of waste oxide gases therein and then venting, to the atmosphere. Since the product stream of the first and second reactions occurring in the "first step" of the process disclosed in Allison, et al. form a desired product stream, which is to be further processed in subsequent processes or otherwise utilized as a valuable intended product. Thus, neither of the first or second reactions, nor the overall "first step," produces a "waste" oxide gas stream, as required by the present invention recited in amended independent Claim 1. In other words, the oxide gas (carbon monoxide) formed in the process of Allison, et al. is an intended product, not a "waste" product. Moreover, the carbon-monoxide-containing effluent stream of the "first step" in Allison, et al. is formed for the very purpose of being fed to the second step wherein it is converted to higher hydrocarbons and is not intended or otherwise destined to be vented to the atmosphere. Furthermore, Allison, et al. fails entirely to discuss the treatment and/or fate of any "waste" streams which are produced by the process disclosed therein. Allison et al. has not addressed the problem of reducing or eliminating waste oxide gas emissions to the atmosphere at all, but rather concerns the direction and content of intermediate and final product streams of that process. None of the streams discussed in Allison et al.

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would otherwise have been deemed garbage and useless, such that they would be "waste" streams to be discarded, such as by venting to the atmosphere.

Based on the foregoing explanation, it is believed that the present invention as recited in amended independent Claim 1 is novel and unobvious and, therefore, patentable over Allison et al. Since each of Claims 2 and 4 depends from independent Claim 1, it is believed that they are also patentable over Allison et al. Accordingly, withdrawal of this rejection of Claims 1, 2 and 4 is hereby requested.

CONCLUSION

Based upon the foregoing Remarks and explanation, Applicants and their attorney hereby respectfully request re-examination and allowance of Claims 1, 2 and 4.

The \$810 fee believed to be due in connection with the filing of a Request For Continued Examination in connection with the present application is addressed by the accompanying completed Request For Continued Examination form.

No additional fees are believed to be due in connection with submission of this Amendment. If, however, any such fees, including extension and petition fees, are due in connection with the submission of this Amendment, the Examiner is hereby authorized to charge them, as well to credit any overpayments, to **Deposit Account No. 18-1850**.

Respectfully submitted,



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